

REMARKS

Claims 1-15 are pending in the application. Claims 1-15 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Rueckes et al., "Carbon Nanotube-Based Nonvolatile Random Access Memory for Molecular Computing", in view of Kaneto et al., "Electrical Conductivities of Multi-wall Carbon Nano Tubes." Reconsideration of the claims, in light of the remarks that follow, is respectfully requested.

Applicants thank Examiner Coleman for the interview of January 4, 2006, in which the Rueckes and Kaneto references and the invention were discussed. Examiner Coleman provided an interview summary at the end of the interview with which applicants agree.

Rueckes discloses forming memory storage devices from highly aligned cross-bar arrays of individual single-walled nanotubes. Rueckes discloses fabricating these devices by mechanical manipulation (p. 96, col. 3).

Kaneto discloses measuring electrical properties of individual multi-wall nanotubes, e.g., their electrical conductivity and supported current density (abstract). Kaneto discloses using a micro manipulator to pick up nanotubes, as shown in Figure 4. Kaneto is silent on nanotube-based traces, on traces that include a plurality of nanotubes, and on creating traces by cutting away regions of nanotube fabric, e.g., with lithography.

In contrast, claims 1, 6, 11, and 12 recite a conductive trace including "a plurality of unaligned nanotubes" for providing "a plurality of conductive pathways" along a trace. In certain embodiments, ribbons made from a non-woven fabric of nanotubes can be used as electrically conductive elements, or traces ([0038]). Figure 12 illustrates an embodiment of a non-woven fabric of nanotubes, having nanotubes that may curve and may cross over each other, and areas of discontinuity ([0091]). The non-woven fabric is not a single piece of bulk material. As described in the specification, in some embodiments lithography is used to cut away portions of the non-woven fabric, to form conductive traces. For example, figure 17 shows traces formed by lithographically patterning a non-woven nanotube fabric ([0118]-[0119]). The specification notes that traces made from a nanotube fabric provide many alternate paths through which electrons may travel, e.g., conductive pathways, within a given trace ([0039]).

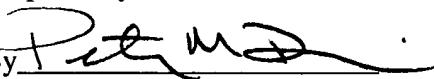
Neither Rueckes nor Kaneto, separately or in combination, teaches or suggests a plurality of unaligned nanotubes for providing a plurality of conductive pathways along a trace, as recited in claims 1, 6, 11, and 12. Rueckes discloses traces formed of single, highly aligned nanotubes. Kaneto discloses measuring electrical properties of nanotubes, and is silent on traces that include a plurality of nanotubes. Thus, claims 1, 6, 11, and 12, and claims dependent thereon, are not obvious over Rueckes in view of Kaneto.

Claims 13, 14, and 15 recite "a non-woven fabric of unaligned nanotubes." Rueckes does not disclose non-woven fabrics of unaligned nanotubes; Rueckes discloses highly aligned arrays of nanotubes. Kaneto does not disclose non-woven fabrics of unaligned nanotubes; Kaneto discloses measuring electrical properties of nanotubes. Thus, claims 13, 14, and 15, and claims dependent thereon, are not obvious over Rueckes in view of Kaneto.

In view of the above remarks, applicant believes the pending application is in condition for allowance. A petition for a one-month extension of time accompanies this Response, and the Commissioner is hereby authorized to charge Deposit Account No. 08-0129 the fee of \$60 to cover the cost of this extension. No other fees are believed to be due at this time. However, please charge any fees, or credit any over payment, to Deposit Account No. 08-0219.

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Respectfully submitted,

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